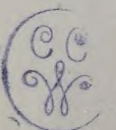


H. H. Collins

1914

Berkeley & La Jolla



Harner H. Collins

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Berkeley, Cal.

— Field Notes —

Friday - June 26 - 1914. 7-9 A. M.

Weather - clear and warm.

Locality - Canyon Road, University Campus.

This was the first trip made by the class. Because of the number (about 15) in the party and their somewhat noisy approach the number of birds studied was less than it might have been otherwise.

First heard a warbling vireo, in high oak foliage, near Chemistry Bldg. Next, a willow woodpecker was seen and heard. The peculiar characteristic manner of perching and advancing up a limb, as well as its small size and markings were noted. In vicinity of Senior Women's Hall, the brown towhee, russet backed thrush, and western flycatcher were found. The towhee's pip - (feeding note) its coloration, size and ground foraging

specify
there

specify

habit were noted. The flycatcher's habit of dipping the tail and constantly turning head from side to side were observed. The somewhat plaintive note of the flycatcher resembles that of its near relative, the wood-pewee. The russet-backed thrush was seen high up in a dead willow tree. Song and marking especially the ~~dark~~ grayish breast with dark spots were noted.

Near the dairy barns, a pair of plain titmice were seen. It was observed that they usually forage in pairs, and that they in common with all titmice were crested. They are very restless in manner. - Saw a bird on fence, found it to be a California jay in juvenal plumage.

In underbrush near small bridge, above dairy barns, found a pair of golden pileolated warblers: to be distinguished from other warblers, by the black patch on the crown, and the song which is in monotone.

More brown towhees were observed, hopping about on the ground under the trees. A bush tit was seen perched on a telephone wire. It was very probably on the wire to get location. A spurred towhee was heard singing in a nearby tree. The song is a monotonous succession of notes - something of a suppressed alarm clock effect. - Found nest of pileolated warblers, containing two young, ready to leave nest. Nest was near the ground in a willow shrub. The single rasping note of the wood pewee was heard. Parents feeding?

July 1 - 1914 - 7-9 A. M.

Weather - warm, somewhat foggy, very little wind. - About 15-20 students in party. - On campus between East Hall and Senior Women's Hall, song sparrow, warbling vireo, coast jay, purple finch, and brown towhee were heard and seen. The song sparrows, when singing are to be found in trees from 10 to 40 ft. from the ground. The warbling vireo may

we found a little higher up. The coast jays are quite numerous in the eucalyptus, back of the Greek Theatre. They are easily distinguished from the California form by their conspicuous crest as well as by their note. Three notes were heard; (1) a rasping continuous note, (2) a discontinuous chattering note, and (3) an imitation of the red-tail-hawk. Heard purple finch in terminal branches of cypress below Theatre. They seem to prefer a lofty perch when singing. Brown Towhees were seen in eucalyptus grove in numbers.

Near first bridge on road near S.W. H. saw pair of Sierra juncos, foraging under eucalyptus. White feathers flashed in flight. This species is listed as a winter visitant. Occurrence at this time of year, unusual. The descending trill of a lutescent warbler was heard just above the bridge. Bush tits were seen in willow brush. Their stringing flight in a scattering flock was observed. Heard their squeaking feeding notes similar to feeding notes of lutescent

Saw a Calif. jay in top of dead willow tree feeding young. The food call of young as well as the appearance of its juvenile plumage were observed. - Observed a pair of lutescent warblers foraging in terminal foliage of a live oak in canyon. Seemed to be feeding young. They hop along, working up the branches, sometimes almost upside down. - Pileolated warbler heard near Dairy Barn. Brown towhee also in same locality. Near Swimming Pool, spurred towhee was located in a laurel. Call note similar to that of jay.

Saw a purple finch. - Distinguishing characters, purple head and throat, no streaking on breast, emarginate tail. Heard thrasher across canyon on hillside. Several linnets were seen in flight. Their flight is swifter than that of the goldfinches, with less dipping.

Heard quail; two calls "the 'alls well," and the "come right home." - Spurred towhees seen and heard in live-oaks near swimming pool. - The slow, intermittent flight of a brown towhee was observed.

Above pool, in brush in canyon, wren-tit was found, also a song sparrow. The song sparrow is normally a creek-side bird, constantly twitches tail and has a wabbling flight. — Near Hog Serum Lab, perched in a dead tree down in canyon, saw a red-shafted flicker. Same locality, black-headed gros-beak. Coloration similar to that of towhee (sparred). The two may be distinguished by song, form of beak and coloration. — Parkman wren seen fluttering about second univ. cottage. No superciliary stripe. — Same locality, wren-tit. Buzzing note less staccato than that of g. p. warbler. — A dry hillside brush feeder. Carries tail which is about as long as the body, in a tilted position. — Heard a new call note of the russet-back thrush, similar to quail call. The thrush has several call notes, some of which are detached bits of its song. — From porch of Univ. cottage saw a pair of Anna humming birds, dist. from the Allen by their larger size and by the greenish tinge of the plumage.

An Anna humming bird, two phainopepla warblers and a western flycatcher were also seen here. The barred wings, twitching tail, constantly moving head and small size of the flycatcher were noted. A wren-tit was seen in roadside brush near the swimming pool. — Horizon, - 22 species. Most common form: the brown towhee.

Field Notes - July 3 - 1914.

Time, 7 to 9 A. M. - Cloudy - no wind. Canyon road. This trip over the same route as the preceding trips was largely a review of bird songs and manners. The same species were encountered in about the same localities. The party was divided into two sections, Dr. Taylor taking one and conditions for study were more favorable.

A female quail was heard calling her young, above swimming pool

to the left of the road. At same place, for first time, we got the song of the wren-tit. From the porch of the first univ. cottage, we saw a russet back eating thimble berries. A song sparrow was heard here. - Above Hog Serum Lab. - a quail's nest containing one egg was found. The nest was little more than a shallow hole in the ground. The egg was white with a few light brown splashed.

Above the upper univ. barns, in a patch of thistles, a laguli bunting was seen and heard ~~in~~ perched upon the top of a thistle-stalk. A shrike was seen, at a distance on a fence. Identified by its characteristic bill and coloration. In same place, about 1/2 dozen linnets were seen on the topmost board of the fence. Identified by the reddish coloration of head throat and breast. - A song sparrow was observed perched in the top of a buckeye tree.

We found that it had three distinct variations in its song. In singing the throat swells out and head is tipped skyward.

A vigorous wren was seen near dairy barns (lower). Differentiated from parkman by presence of superciliary stripe. In return trip near bridge above S. W. Hall we saw a willow wood pecker, - a rather rare campus resident. A pair of sierra juncos were also seen. - Near S. W. Hall, parkman wrens were observed foraging about in underbrush and carrying insect food to a nest located in a hole in limb of live-oak. In same locality, we heard wood pewee, lutescent warbler, coast wren, (call note similar to that of red-tail hawk), western flycatcher, warbling vireo, song sparrow, grosbeak and Anna hummingbird.

Horizon about 26 species.

- Golden Gate Park Trip - July 4 - 14.

Weather, calm, warm and bright. In portions of park not sheltered by trees, a brisk breeze was noticed.

The party about twenty in number entered the park at the Haight St Entrance. In lagoon, near this entrance, a coot, a female mallard and two black swans were seen. Most conspicuous characters noted were (1) the white bill with subterminal brown spot, bill in shape, stout, nearly as long as head. (2) The toes not webbed but with lobate edges. (3) The coloration, whole head and neck blackish, rest of upper parts, seen, plumbeous. This coot was perhaps a prisoner here as the lagoon appeared to me too small to afford the bird the running start necessary to it in starting to fly. Despite the non-webbed toes, the bird appeared to be a good swimmer not at all handicapped by the peculiarity. - The black swan is an exotic form and need not be described here.

There is some doubt as to whether the duck observed was a female mallard. It did not seem much larger than the cock. The adult measurements are 20-25 in. and, 13-16 in. There is a possibility that the mallard was a juvenile of either sex.

On lawn near lagoon Nuttall and English sparrows were foraging, the latter predominating in numbers. The Nuttall was easily distinguished by the white markings on its head, also by ground movements. The Nuttall sparrow hops very rapidly, pauses and repeats the process. The English sparrow takes slower and longer hops.

— *Acacia* and *digitalis* were observed in bloom. Scotch broom also in bloom.

From the lagoon, the party moved toward the aviary. Russet backed thrushes were heard singing high up in the eucalyptus trees. We heard a California yellow warbler in a clump of shrubbery. The note differs from those of the pileolated and lutescent in being

shriller or higher in pitch '2' in not being
so monotonous a repetition and in having
a median rather than a terminal
variation in tone. - Saw Anna hum-
ming birds (1-2?) on wing. Their notes
were at first mistaken for the feeding
notes of bush-tits. - Spurred Towhee seen
and heard. Closely resembles the black-
headed grosbeak. Throat of Towhee is black,
that of grosbeak orange. Bills are different,
" " " being much stouter.

A green backed goldfinch, seen foraging on lawn.
A very favorite haunt of this bird. Closely
resembles the lutescent warbler, but their
ecologic niches are not the same, the
warbler not being found so far down, it
being more of a hillside habitue. The two
forms distinguished at a glance by noting
difference in form of bill.

Near tennis courts, on lawn many
English and Nuttall sparrows were observed.
One funeral Nuttall was observed in process
of moult, being without tail feathers.

In deer paddock, Calif. quail and English sparrows were seen at a distance. In the pines in moose paddock pine siskins were heard. I did not get a good view of them. ^{their} ~~their~~ notes resemble ~~to~~ ^{to} those made by ~~many~~ ^{many} of them. A flock of bush-tits was observed here also. — An emu was seen in one of the enclosures. The great size of the bird, its peculiar feathers and the absence of hind-toe were noted. — In the deer paddock a pair of quail with brood of half grown young (8-10) were seen.

— In the Aviary —

For the most part the species seen here were foreign and need not be especially noted. It may be said in passing that most of the forms from the tropics are very brilliantly colored, while their notes are harsh and unmusical.

The short raised toe of the gallinaceous birds was observed on golden and white pheasants. — A bald eagle was studied for chief character-

istics (1) the powerful hooked beak and claws, the white head and neck and the tarsus upper half only, feathered. - Horned and barn owls were also seen.

Museum - Here a large number of foreign forms were seen. Among the forms of especial interest is the ptarmigan, a bird of the arctic whose coloration (white) is protective in a region of snow and whose plumage changes to a mottled grayish upon the melting of the snow, in summer. The roseate spoonbill, the name of which is an indication of its distinguishing characteristics. The night heron (native) with black crown and few long, ^{white} crest feathers. The ki-wi - somewhat smaller than a goose, which lays an extraordinarily large egg. - The egg of an extinct bird of Madagascar was seen. It was oval in form and had a capacity of two gallons.

Birds of interest in the Japanese tea garden were the Java sparrow, Japanese stork, and Japanese faulst minus the long feathers.

Stow Lake — A number of water birds were seen here. Two or three coots, same as previously mentioned: a few ^{lesser} scaup ducks of both sexes. Characteristics noted: (1) short wide bluish bill, (2) Head greenish black, shoulders, rump & chest black. Female - prevailing color brownish. On the shore near the water's edge a pair of brewer blackbirds were seen. The male, ^{iridescent} bluish black. The female dark brownish, without markings.

- A single baldpate duck was identified by the bill, blue with black tip, the white crown with sides of head bearing metallic green patches, neck and head region below green patches, buff with dark specks. - A single ruddy duck was identified by its prevailing chestnut color,

and black head with white cheek patches. The most numerous ducks were the mallards - more numerous than all the other forms together. They were in summer plumage, males and females being very much alike. Two large ducks were not identified. Across the lake near the water's edge a number of pelicans were seen.

Crossing the bay two species of gulls were observed, - *Larus accidentalis* (western gull) and *Larus heermanni* (Heerman gull). The first is slightly larger than the second and may be distinguished from it by coloration as seen in flight. The mantle is a dark slate color while in the case of the Heermann, the bill is bright red and the head and upper neck are white.

The horizon was in all 30-35 species.

- Notes on Mammals -

In deer paddock; saw young fawn. Spotted coat of young fawn noted - probably serves to break up the outline of the creature and in a proper setting serve to hide it from its enemies. - In the moose paddock, a bull moose, several cows and a young calf were observed. The horns of the bull were in the "velvet." The horns of all the cervidae are lost or cast annually and new ones grow. Each new set of antlers is larger and more complex than the preceding. The young moose is provided with stilt-like legs by means of which it may escape from pursuing enemies.

The brown bear (*Ursus arcticus*) is a form which is found from Vancouver northward to Alaska. This species sometimes exceeds the grizzly in size.

Two phases of the black bear were seen. Difference in moult caused difference in color — A number of bison were seen. They presented a rather uncouth appearance, in their half-moulted coats. It was noted that bison do not have upper front teeth.

Sunday - July 5 - 1914 - 7 A. M. - 2 P. M.

Locality - Campus to Grizzly and Bald Peaks. - Weather foggy until 9:30. No wind until upper slopes were reached. There found a brisk breeze! Two in party. - Condition of vegetation found tar-weed, hog-fennel, cyprus, erodium, convolvulus, elder-berry, brassica campestris, and escholtzia in bloom, dandelion and thistle in seed.

Western flycatcher heard in upper foliage of tree near Harmon Gym. Saw about a dozen linnets on wires and roof at Budd Hall. Great numbers of English sparrows were encountered in streets, vacant lots and on campus. - In canyon near East Hall, a pair of Santa Cruz song sparrows were observed foraging in the low brush near the stream bed. Saw brown towhee on ground near Chemistry Bldg. As usual heard purple finch in top of conifer below

S.W. Hall, This seems to be a favorite station. Later saw the bird. They are not of a restless disposition apparently and sing for a considerable time without change of position. - Spurred towhee seen and heard above S.W. Hall. From same station heard coast jay, song sparrow, western warbling vireo and the aberrant spurred towhee. This towhee was found in company with a young brown towhee about which it seemed to be quite solicitous. - Parkman wrens⁽²⁾ were seen in vicinity of nest. Did not enter it while under observation. - California jay foraging on ground above S.W. Hall. - Heard note of wood pewee and finally located the bird.

In vicinity of dairy barns, heard song sparrow, golden plicated and lutescent warblers, and russet-backed thrush. - In willow shrub, in canyon above hog serum lab. saw and heard lazuli bunting. - On

Grizzly Peak, saw two small hawks at a distance, - probably *Falco sparverius*. They were evidently feeding on insects. They would soar at some distance from the ground, then swoop down and skim along surface. Sometimes they would head into the wind and beating wings rapidly maintain a stationary position, then swoop down. Some of the raptors habitually forage in pairs, whether this is the case with the sparrow hawk I do not know.

— In the dense growth of live oak, etc. in canyon between Grizzly and Baldy, heard California Thrasher. From its song, we picked out the notes of the hawk, jay robin. - Heard and saw a few *Sturnella neglecta*. - Between Grizzly and Big L among the recently planted pines we found linnets in large numbers in almost total possession. Their favorite position - terminal shoot of the young trees. They were

singing away at a lively rate when observed - at mid-day - A mourning dove was seen in flight between Grizzly and Big C. - Horizon, 22 species.

Monday - July 6-14 7-8 A. M.

This trip over the same route as followed on a number of previous trips was largely a review of bird songs previously heard. The weather was cool and foggy and the birds were not as much in evidence as usual.

Among birds heard or seen or both, were the warbling vireo, wood-pewee, Santa Cruz song sparrow, western flycatcher, bush-tits, lutescent warbler, brown towhees, spurred towhees, russet backed thrush. -

A pair of Calif. jays were seen in low brush feeding a young jay

In the vicinity of the hog serum lab. we heard the note of the chip-

ping sparrow for first time. In
brush by roadside - heard at once. The
soft subdued jay-like call note of the
song sparrow, and the sputtering of
a wren-tit. Saw wren-tit. Noted
that tail was about length of body.
Also heard buzzing of Packman wasp.
- Call note of flicker heard in dis-
tance.

La Jolla - Trapping Records.

July 6.-16

Murarium canyon to junction with canyon just east of it, beginning near murarium. Another string of traps set in second canyon from junction up about $\frac{1}{4}$ mile. 40 traps in all. 17 animals. 4 gambeli (3♂ & 1♀)

Most of the traps were at or near (within 40 ft.) canyon bottom.

The other species caught mostly *P. m. eremicus* - 2 or 3 *Reithrodontomys* and 1 *microtus*. Exact no. and sex not noted.

July 7.

Trapping in same place and also up hillside to top of ridge; a few traps in shallow canyon, between murarium and out door cages. 46 traps

5 gambeli :- 4♂, 1♀. Most of them caught between murarium and out door cages.

July 9.

Locality - Hog ranch canyon from bean field up to eucalyptus grove. Traps on canyon floor in thick growth

of mustard. Caught 13 gambeli :- 7♀ : 6♂
Perognathus - 6 . *Reithrodontomys* ? 1

July 10.

In same loc. as on 7/9. Caught gambeli ♂ 4 (2 juv. - 2 adol.) 3 ♀, 1 ap. preg.

July 11.

In lower hog ranch canyon set 10 traps next to south slope. From near elder tree by road to $\frac{1}{8}$ mi. above.

Gambeli: - 1 ♀ & 5 young born in trap. 1 ♂ adol. in same trap. Not removed to cages until 4:45 P.M. All lived.

1 ♂ - ear deeply cleft. Tail scarred.

Perognathus 2 ♂, 1 ♀ adol.

7/12.

(1) Lower murarium canyon from bridge to state highway. 14 traps in mustard thicket.

Caught: - Gambeli ♂ 3 near auto road, 1 gambeli ♀, hillside near bridge (n. side), 1 pocket mouse in next trap, prob. 40-50 ft. distant.

Reithrodontomys: - 1 ♂ in lower murarium canyon - hillside below bridge - mustard & artemisia

(2) Sec. string - 40 traps from hog ranch to Soledad canyon. Prevailing veg. - on hillsides & ridge - oats & thistle. In Soledad canyon - Fox tail, then mustard.

Beginning at the base of the hillside where the oats-thistle & mustard thickets meet, string traps up to summit and over to mustard thickets in Soledad canyon.

Caught:- 1 *P. m. eremicus* ♂, loc. not noted

Mus musculus 1♂ & 1♀ in same trap.

1♂ - high hillside - thistles - oats & mustard; 1♀ Soledad canyon veg. as above. $\frac{2}{3}$ down to channel.

Perognathus 3♀ & 1♂. 1 of the ♀ was taken on top of hill near bean ranch in oats-thistles - mustard. The ♂ near bridge mus. canyon.

July 17

Traps 1-20 in l. mus. canyon south of channel, in mustard thicket. ^{7/18} Also set 34 traps in Soledad canyon, beginning at edge of bean field and continuing up about $\frac{1}{2}$ mi. following water course. Third string from state highway toward beach, 20 traps.

Note correction in date →

July 18

Mice caught. - in 20 traps in l. mus. canyon

Gambeli 3♂ and 1♀ (dead in trap).

Mus - 1♂ & 1♀ in same trap - mustard and oats near auto road. (Cont. page 36)

- Muir Woods Trip -

Saturday, July 11, 1914, 8³⁰ A.M. - 3 P.M.

Route - From Ferry Bldg. to Sausalito by Ferry; Sausalito to Mill Valley by train; Mill Valley to Redwood Canyon, thence thru Muir Woods, then up Mt. Tamalpais railroad track, returning to Mill Valley by "fire trail" - a walk of 7-8(?) miles.

Number in party 18. Weather conditions: In S. F. Bay, windy and partially cloudy - some mist. Mist and fog encountered on hill slopes, especially above timber line.

Life Zones and Bird Associations.

1. Region between Mill Valley and Sausalito. - This is a region of tide flats and tule marsh land. Birds observed: - (1) Brewer black birds, 2-3 large flocks, foraging on tule flats. (2) Western crows; 12-15, tule flats, on ground or perched on tule-stalks. (3) Great blue heron (1 only) on mud flats standing in shallow water. (4) Several gulls - sea-birds - foraging.

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on mud flats near water, some beach
on filling. Surface of tide flats - covered
by rocks, perhaps largely of gulls.

2. Steep north-facing slope near
Mill Valley. Heavily wooded, mainly red-
wood. Faunal character - transition.

Characteristic birds found here: -
Chickadee, Coast jay, Olive-sided-flycatcher,
Western wood pewee and Western flycatcher,
and California jay, (on upper sonoran
form which ranges into transition).

Other birds which occurred here: -
Spurred towhee, Blackheaded grosbeak
and Greenbacked goldfinch. Nest observed
in cedar tree near edge of town.
Bird on nest probably incubating eggs.
Purple finch also heard in woods at
foot of slope.

3. Bare arid hill slopes above
timber line. A typical arid upper
sonoran region. - Vegetation - scant

growth of grass; godetia, wild hyacinth
 eschscholtzia, tansy, anagallis, sidalcea,
 castilleja, brodiaea and filaree in bloom.
 also wild parsnip, dandelion, thistle, mimulus.
 Upper canyon slopes - Elder berry, artemisia
 and mountain lilac, ^{no scrub oak,} Lower down in can-
 yons, California bay and alder.

Birds in this association - (1) cliff
 swallows, linnets, pine siskins, bush-
 tits, California jay, wren-tit, western crow,
 brown towhee, humming birds

3 Redwood Canyon - This region
 and Muir Woods as well - in transition
zone. Vegetation :- Redwood mainly.
 Azalea, wild morning glory, buckeye
 and mimulus in bloom, thimble
 berries ripening. Equisetum observed in
 damp places. Birds occurring in this
 region - pileolated warbler, flicker,
 russet-backed thrush, western flycatcher,
 chickadee, brown towhee, bush-tits, chickadees,
 leslip-yellow warbler, both leslip. and coast
 jays,

33
4. A wide hill region along rail-
road and in vicinity of "fine trail."
Typical vegetation, huckleberry and
manzanita. Very few birds were
seen in this region. Purple finch
heard near "fine trail." The note of
the wren-tit was very much in
evidence.

Annotated list of birds seen.

1. *Maris troille californica* - California
murre, or guillemot, 12-15 seen on
bay in flight, swimming and diving.
Fly close to water with very rapid
beating of wings. In flight, wings con-
spicuously long. Color slaty or blackish.

2. *Larus occidentalis* - Western gull -
seen in great numbers on bay;
10-15 followed ferry boat on the lower
bay. Some observed swimming.

3. *Larus heermanni* - an bay -
only 4 or 5 seen. Distinguished from
"2" by darker mantle, wings, under-
parts and conspicuously red bill.

The Western gulls, very similar to Herring gull, but smaller and wings are darker. A number (6-8) of forsters gulls were seen near the water's edge, perched on ledges, others foraging on mud flats. Plumage mottled grayish brown and white. Species hard to distinguish, in field.

4. *Andreas herodias herodias*
Great blue heron. One seen wading in shallow water, on mud flats.

5. *Empidonax difficilis difficilis* -
Western flycatcher - 2 individuals heard in transition areas.

6. Olive-sided flycatcher heard not seen in first transition area traversed - north facing slope above Mill Valley.

7. *Otocoris alpestris actia* - California horned lark. - Heard on arid open upper sonoran hillsides.

8. *Leymus stelleri carbonacea*
Coast lay. -

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Trapping records - cont from p. 29.

Mus - 1♂ & 1♀ in same trap in mustard - lower
mur. canyon.

Reithrodontomys 1 adol. ♀ lower mur. canyon
near auto road in mustard and some oats.

1♀ in trap within 30 ft. of trap con-
taining 2 mus.

Perognathus, 2 - 1 edge of artemisia
oats formation.

July 19. Traps in ^{54 - (first night) + 12 - 2nd night in beach string.} ~~same locations as 7/18.~~

See notes -

July 17-18

← *Perognathus* 3♂ & 1♀. One was
taken between auto road and beach.

Gambeli 1♂ in beach string - mustard
1♀ east of auto road in ".

Mus 2♂ - near beach - mustard.

1♀ " " "

July 20

Same localities. Caught in
Soledad canyon, — { 40 traps in Soledad canyon - 2nd night
20 - auto road to beach - 3rd "
20 - mur. canyon - " "

Perognathus 3♂ : 6♀.

Reithrodontomys: - 1♂ in mustard &
- thick mat of fox-tail and some oats.

Gambeli 3♂ (1 in trap with *Perognathus*)
2♀ preg.?

July 26. String of 86 traps on Inst. grounds
in vicinity of Eucalyptus grove near
Barnhart's residence. Caught:—

Perog.: ♀'s 4: (all adol.?) ♂'s 1—adult.

All in sage, ^{Artemisia} brush, 0—40? rods from wild
oats.

Reithro. ♀'s 3; ♂'s 1 — Artemisia, grass,
cactus

Gambeli: ♂'s, 3; ♀'s, 1. 1 ♂ in Artemisia
edge of oats. 1 ♂ in oats, mustard and grass and
1 ♀ and 1 ♂ same trap in Artemisia.

Erem.: 1 ♀ in Artemisia near oats.
Weather — warm and clear.

July 27. — Traps in same loc. as 7/26. Weather
conditions same. 70—75 traps.

Gambeli: 1 ♂ in Artemisia 40 ft.
from oats. 1 ♀ — oats in euc. grove.

Erem.: 1 ♂ in Artem. and oats.
1 adol. ♂ in Art. thicket 200 ft. fr. oats in trap
with 1 adol. ♂ perog.

Perog. 2 ♂'s; 1 ♀ (2 in art. and 1 in oats.)

Reithro. ♀'s 2 (both in oats)

Aug. 21. 10 traps in canyon north of Barnhart's place - ext east almost to auto road.
Prev. veg. *Quercus agrifolia* (?) Caught 1 ♂ Gambeli near channel in dense art. & rushes. Faeces of *Neotoma* very much in evidence in this locality.

" 4 30 traps in string from path to outdoor yards, up over the ridge and into canyon at point east of yards, south almost to river canyon.

Erem. found from canyon channel to top of hill. }
Erem. ♂'s 5: (1 juv, 2 adol.) ♀'s 2
Gambeli 2 ♂'s (1 adult, 1 adol. - in trap with Erem. ♀)
1 ♀ in canyon channel among "sword grass".
Perog. ♀'s 3 - (1 - juv.) canyon ch. " "
Calif. 1 ♂ - in trap with adol. erem. ♂
Reithr. 1 ♂
1 ♂ erem. in same trap with a dead gambeli & dead *Perognathus*.
" 9 In city farm, around lake.

Perog 1 ♂ and 2 ♀'s - canyon ch.
north of lake. - Cactus - grass - artem.

Reithr 1 ♂

Calif ♂, 1 in trap with perog. ♀ in sec. canyon south and across road from lake in mahog and salvia.

Aug. 9.

Gambeli: 3 ♂'s in canyon n. of lake.

(1 - in grass & mustard, high hillside. 2 in channel

Weather Aug. 2-9 warm and clear.

" 16.

Race Canyon: String 34 traps from old windmill up canyon about 1 1/2 mi. Most of the traps were set in or near the stream bed among the exposed roots of sycamore trees. A few traps (5-6) were set on the south slope of the canyon, extending almost to the top. Prev. veg. here wild rose & gooseberry.

Gambeli ♂ 2. in same trap under large uprooted sycamore in stream bed, near bank. Grass land near.

2 ♀'s - in hollow syc. tree-str. bank.

Weather: clear and warm.

" 17

String of 61 traps in canyon running south from lake on city farms. Along edge of canyon side - and running up into the branch canyons. Prev. veg. mustard and elder shrubs. Caught no gambeli. This looked like a good locality.

Aug. 20. Sorrento Road canyons, on city farm
about 1-2 mi. north of crossroads (Sor-
rento and Delmar? roads).

Branch canyons of three types.

(1) Prev. veg. *Quercus* *wig.* or *agrifolia*?
Very few gambeli caught in this type.
Favorite haunt of *Neotoma*.

(2) Prev. veg. oats and mustard - Not
many gambeli here.

(3) In canyon bottom and lower sides.
"Sword" grass, *Diplocus*, *Rhus* - *Sambucus*
with *Ramona* covering higher slopes
together with some *Artemisia* and
scattered clumps of *Rhus*. Gambeli
most abundant in this type of can-
yon. Best results obtained by trapping
in or near channel. *Neotoma* also
frequents this type of pl. association.

String of 67 traps; catch as follows:
Peromyscus 20 (sex undet.). *Reith* 4 (sex undet.)
Gambeli, 5 ♂'s and 7 ♀'s.

Aug. 21.

Traps in same loc. 59 traps.

Aug. 21.

Perog. 10; Reith. 2 (sex undet.).

Gambeli: 5 ♂'s and 6 ♀'s.

Calif - 1 - sex? in trap with Perog.

Aug. 22.

In same locality. No. traps not noted.

Perog. 9; Reith 1; Calif. 2. Gambeli - ?

third time(?) - in same loc. - Rec. -

gambeli. Or. new loc?

" 29.

Seitz trapping around cottages and in canyon below Michael's. About 20 traps.

Gambeli ♂'s, 10; ♀'s 5

Mus ♂'s 2, ♀'s 3; Erem, 2 ♂'s; Perog. 1 ♂.

" 30.

Sorrento Road - region. In canyon in which road runs and in branch canyons. 58 traps.

Gambeli 13 ♂'s; 6 ♀'s

Seitz trapping around cottages on Institution grounds caught 4 ♂'s & 2 ♀'s.

No. of traps not recorded.

" 31.

Caught by Seitz around cottages

Gambeli: 14 ♂'s; 14 ♀'s and 4 juv. not sexed.

Caught in Sorrento Road canyons:

2 ♂ & in 40 traps. (Sec. night in same

loc.) Other sp. not recorded.

Sept. 1, -16 caught in Sorrento Road canyons -

Gambeli; - 7 ♂'s and 5 ♀'s.

Scitz caught around new cottages
and in canon just north of Sumner's
lot Gambeli; - 21? ♂'s and 14 ♀'s { about 40 traps?
number not rec.

" 22 - caught (by Scitz - loc as on 9/26?)

Gambeli: 7 ♂'s & 5 ♀'s

Erem. : 2

Mus : 2

Calif. : 2

" 26 Caught by Scitz about new cottages
and along edge of cliff between
cottages and Sumner's lot.

Gambeli; 11 ♂'s & 6 ♀'s; Perog, 6 ♂'s.

Microtus, 1. sex? No. traps 42.

Perog. more abundant around cottages than gambeli.

Oct. 24, String of 40 traps extending from
canyon just north of cottages, along
cliff to and into canyon north of
Sumner's place: Cool and foggy.

Gambeli: 18 ♂'s and 18 ♀'s. (1 ♂ d. in trap.)

Perog. 2 ♀'s and 1? d. in trap.

Reich 1 ♂

Oct. 25. - 16 Loc. as on 10/24, 39 traps. (Seitz trapping)

Gambeli:- ♂'s 9 living 2 dead

♀'s 9 " 4 "

Perog. 1♂, Reith. 1♂, 1♀ and 2 not det.

" 26

Loc:- Munaricum canyon - beach to wagon bridge below fork of canyon. (Seitz tr.)

Gambeli:- 6♂'s & 4♀'s: 1♂ a juv. - 5 wks.?

2♀ preg. & 1 juv. Perog:- 4♂'s & 4♀'s. 2♀'s and 2♂'s late adol.?

1 adol ♂ in same trap with ♂ Erem.

Reithr. 1♂, 1♀ and 2 not sexed - lib. in field.

Erem:- 4♂'s and 1♀. 1♂ a juv.

" 27

Loc. same as 10/26. (Caught by Seitz)

Gambeli: 5♂'s (2 juv.: 2 adol. 6-7 wks)

" ♀'s 4; 1 of these preg.

Reith:- 5♂'s; 2♀'s (1 preg.)

Erem:- 1♂; 2♀'s; Mus:- 1-? etc.

Nov. 1.

Caught by Seitz: Gambeli 13♂'s; 7♀'s (1♀ juv.)

Reith. 1♂; Perog. 1? d. in trap with 2 ♀.

Exam. for pelage phases.

Transition conspicuous in 1 case; evident

only by parting overhair, 12; having

no indication of change of pelage 5.

Nov. 1 Weather cool and foggy.

" 2. " " " " " " Loc. $\frac{1}{1}$ - $\frac{1}{2}$

Sec. canyon north of Barnharts. South slope of and on ridge to south of canyon. String of 40 traps ext. fr. point about $\frac{1}{4}$ to ft. approx. $\frac{3}{4}$ mi. from beach.

Prev. veg.:-

Caught:- Gambeli; 9 ♂'s & 3 ♀'s & 1? (esc.)

" caught in mur. yd.:

3 ♂'s & 2 ♀'s (1 ♀ juv.)

Perog. 1 ♂ and 1 ♀ (rec. incomplete?)

Reith 3 ♂ (" " ?)

" 3 Weather cool, foggy. Loc. ...

Caught:- G ♂'s 5 : ♀'s 6. Reith. 4 ♂'s, 2 ♀'s & 1? (esc. before sex det.) Perog. 4 ♂'s and 3 ♀'s

Erem. 1 ♂ and 1 ♀

Caught in traps in yard: 1 G ♂ : 1 G ♀ and 1 Perog ♂.

Nov. 10 — Trapping around upper cottages.
Caught: Gambeli: 1 ♂ & 1 ♀; Mus 2; Perog. 2
Weather - clear and warm.

" 9. Loc. as "10. 35 traps.
Caught: Gambeli: 8 ♂'s & 7 ♀'s
Perog. 5 - not sexed.
Mus 3 — " "

" 28. — Trapping in canyon north of
Simmer's residence and along
the cliff in same vicinity. Weather
cool and foggy.

Caught: — Gambeli: — 17 ♂'s & 12 ♀'s.
Among these 2 adol ♀'s & 2 adol ♂'s.
Perog: 1 ♀ Microtus 1 - not sexed.
Reith. 2 ♂'s, 1 ♀ and 1? - sex. in field.
Lealif: 1 ♂

" 29 Loc. as "28. Weather cool, foggy.
Gambeli ♂'s 6; ♀'s 6.

One ♀ adult with very short stump
tail. Length of stump about 0.5 cm.

Reith. 3 ♂'s; 3 ♀'s and 1 - sex. not det.
Perog. 2 ♂'s.

12/29 Thirty-four traps on bluff " to beach, from Sumner's residence south. Fourteen traps - around new cottages. 48 traps in all.

Weather cold with rain during night - ground wet.

Gambeli ♂'s 19 and ♀'s 19

1 ♂ adol. : 1 ♀ adol. and 2 ♀ juv.

Mus - 2 - not sexed.

Perog. 5 : 2 ♂, 1 ♀ and 2 not sexed.

Reith 2 : Calif. 1 ♂

1/29-17 Thirty-two traps. Same gen. loc. as 12/29. Weather cool and foggy.

Gambeli ♂'s 8 and ♀'s 9

Reith. ♂'s 4 and ♀'s 2

Perog. ♂'s 3 " ♀ 1

1/30 Twenty traps: Loc.?

Cool and foggy.

G. ♂ 1 and ♀ 1

Reith ♂'s 4 and ♀ 1

Erem. ♂, 1.

1/31-17

20 traps - 3 or 4 around upper cot-
tages. Remained along cliff south of
Sumner's. Caught :- gambeli ♂'s 5 (1 juv.)
5 ♀'s. Reith. 2 ♂'s, 1 ♀

2/27

Loc. and no. traps not given.

gambeli ♂'s 8 ; ♀'s 6 (2 juv. - 1 preg.)

Reith. ♂'s 3, ♀'s 3

2/28

Loc. and no. traps not given.

gambeli ♂'s 7 (1 juv.) ♀'s 6 (2 - juv.)

Perog. 1 ♂ : Reith ♂'s 3; ♀'s

3/5

Loc. ? 15 traps. gambeli ♂'s 3, ♀ 1.

Erem. ♂'s 4, ♀ 1. (1 sex? in same trap with gambeli)

1 - Perog. - 221

3/7

Lower murarium canyon on back side
of bridge (auto road)

gamb. ♂'s 6 (3 juv.) ♀'s 3 (2 preg.)

Erem. 1 ♂ & 1 ♀ : Reith ♂ 1, ♀ 1

3/29

caught by Guyer in lower murarium
canyon. 5 gambeli ♂'s; 6 ♀'s (3 preg.)

Perog. 1 ♂, 1 ♀. Reith. 2 ♂'s

3/30-17 South branch of Murarium canyon, no trap
not noted:

gambeli 2 ♂ (1 adol.) Perog. ♂'s 2, ♀'s 5
erem. ♂'s 3; ♀'s 6 (3 - prep.)
Reich. 1 ♂, 1 ♀

3/31 Murarium canyon, along road from
auto road up a short distance beyond
junction (into south fork) 30 traps.

Perog. ♂'s 2; ♀'s 3. gambeli no ♂'s; 1 ♀

4/1 Murarium canyon ^{from murarium} down to and
a short distance (?) below junction.
No. traps?

gambeli ♂'s 6; ♀'s 1 Mus 3 - sex?
eremicus ♂'s 2; ♀'s 2 Reich 1 ♂, 1 ♀
" 1 - sex?

5/1 Loc. and no. traps? gamb ♂'s 4 (1 juv, 1 adol.)
" ♀ 1

6/1 In canyon below Esterleys (just
north of Ritters') and around upper
cottages. 45 traps

gambeli ♂'s 5 (2 juv - 2 post juv.)
" ♀ 1 - juv.

erem. ♂'s 3; ♀'s 3 (2 juv.)
1 microtus

6/2-17 36 traps in lower muraricum canyon. - gambeli ♂'s 2 - post-juv.

" ♀'s 1 - " "

Perog. 1 ♂, 1 ♀ both juv-adol.

6/5 Lower mur. canyon both sides of auto road, and along ft. of hill south of mur. canyon. No traps?

Note - see page 2 for details of this trip

gambeli ♂'s 6 - 4 post-juv.

" ♀'s 2 (1 with brood of 4 in trap; 1 y-postj)

Perog. 3 - sex? 2 were juv- or p-j-?

Mus 1 - " ? 1 - juv. eremicus.

7/3 Lower hog ranch canyon west of asphalted grave, - in the water course (near south side). Then around west base of hill bordering bean patch.

gambeli ♂'s 10 { 3 juv. post-juv.
1 post-juv.

♀'s 6 { 1 juv.
4 post-juv. (juv. on head)

Perog. 1 ♀ juv. thomomys 1 ♂

No traps - 46

7/10 10 traps in hog ranch canyon. Traps south of water course along ft. of hill from road.

goose to west pt. of hill and
about an equal distance. along ft
of hill toward west canyon to south
All mice caught between creek
groove and west point of hill.

gambel's 2♂ 1♀^{1 post-mort.}
9♂ 17 { 5 post-mort.
 1 post-mort.

Frog. 1♀, 2 post-mort.
Rith 1♀

7/24 60 traps on bear farm
around base of hill west of
the house and up canyon
to southeast of hill.

gambel's 2♂ 1 adult, 2 post
♀ 2 -

7/27 Mammals canyon - from
canyon to back. No. of traps?

gambel's 2♂ 2 - (1 post-mort.)
2♂ 1 - (1 post-mort.)

Frog. 7 - (2 post-mort.) sex?

Wren 3 -

Even. 2, Rith 1 -

31-11 Loc. No. traps?

gambeli ♂ 4 (2 - post-fert.)

♀ 1 (3 - post-fert. juv.)

Max 5 - sex?

8/11 -

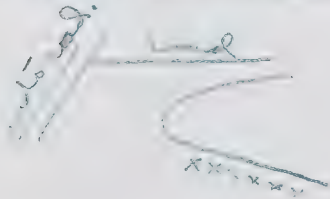
Trapping in and around head
of Grand Canyon.

gambeli ♂ 2 - post-fert.

Perog. 2; eremicus 2 ♂'s - post-fert.

8/3 -

Beau ranch - on south side of ridge



gambeli ♂ 4 (1 with larva 1/4 tail gone)

♀ 1

Perog. ♂ 2, ♀ 2 + 3 not sexed.

Rith ♀ 1 + 2 young born in trap. Perog.

No traps - 40

8/12

30 traps - near canyon, junction
of branches to beach.

Perog. 6-8 caught all along string.

Rith. 2- ' below auto road.

gambeli - 1 ♀

8/17

40 traps on inst. grounds in

canyon just south of summer.

gambeli ♂ 6 {1 - post-fert.

"

♀ 6 - 3 sexed

8/7-17

eremicus ♂ 1 ; ♀ 1 - post. pos.

Perog. 4 - not sexed. *Microtus* 1.

8/15

Southern road, $\frac{3}{4}$ - $1\frac{1}{2}$ mi. north
of Linda Vista road. Along road for
about $\frac{3}{4}$ mi. and in two canyons, west
of road. 52 traps.

gambeli ♂'s 1 (2 - post. pos.)

" ♀'s 1 (2 - " ")

Microtus 1 ♂

Perog. 1 ♂ ; 1 ♀ *Perog.* 1 ♀

Perog. 15 (= pos. - post. pos.) not sexed.

9/7

About 40 traps set on main
fawn.

gambeli ♂'s 4 (= - post. pos.)

" ♀'s 2 (1 - " ")

Perog. 1 ♂ ; *Microtus* 1 ♂

9/18

40 traps in canyon above Estancia
and around upper village.

gambeli ♂'s 5 (= - post. pos.)

" ♀'s 4 (1 - pos.)

eremicus ♂'s 4 (1 - post. pos.)

" ♀'s 2

7/16-17 A six string of 43 traps in mus.
canyon, 1/2 mi. above junction and down
to into road and 1/4 mi. south along ft.
of hill. Caught gambel. ♂ 1; ♀ 2

4/6 Canyon road from hog ranch
buildings north 3/4 mi. - 67 traps
gambeli ♂ 1 - stump-tailed - buff
" ♂ 1 - fur-foot-fur,
cremiceus, 1 ♂, 1 ♀ both adult.
Keith - 4 - not used.

4/9 Arcene Canyon - Started near
mouth of arcene, along north side
of canyon to cliffs, then north
along cliffs to end canyon (next can-
yon north) - up this canyon,
about 1/2 mi. then west up to top
of cliffs - and on north into hay field.
Set 4 traps around large hay stack.
Bait taken but no mice caught
here. West results on north bank
of canyon from arcene to cliffs,
pond along edge of cliffs - in
fact along whole north bank at

sp. - young } 9 - per nest - per
 gambeli's 18 } 10 - per
 " R's + } 2 - per
 " " } 2 - per
 Bering. The 1/2 } 1/2 adult
 " " } 1/2 adult
 " " } 1/2 adult

6/11 Traps (14 in all) 1 from top on north side of 2nd canyon along trail down almost to beach. 4 mice in 14 traps. Bait taken from nearly all empty traps. This true of the other two strings. (2) 14 traps on edge of mesa around head of 2nd canyon starting at end of north beach 6 mice in 14 traps. (3) 21 traps

along north rim of end canyon
from end of trail west to cliffs then
north along cliffs and around head of
next small canyon. Poor results. Bait
taken in nearly all cases, 5 mice, 20 traps

Gambelli 1' 6 1/2 2-100.
2-100-100.

" 7's 5 (1 year preg. - post-jur

plaza beneath gas. near west of body,

Terap. 2 - 1 juv?

From. ♂ 1, ♀ 1 - juv. - post-juv.

929-7 Mexican canyon - muricium
down to beach. 40 traps.

gambeli St. Y. - 2 feet per.

1 ♀ - fine diff phase

Excess. 2 yds (1 ft. post-post.)

Prog. No 3 (1st year)

73

Arch 1

7/6. Hay ranch canyon, from excel. -
grows most along edge of hills in
mustard. 40 traps.

Troops.

Nearly all in caught between A and B.

gambeli 2¹/₂ 1¹/₂ 4 - ^{1-yr.} post. fur.

♀'s 9 7 3 - ^{4-yr.} post. fur.

Perog. 1 - ^{1-yr.} fur.

Roeth 2 1

Minotaur 1 - ^{1-yr.} fur.

9/26 16 traps . 30 traps in Grand Canyon
around head of river. 40 traps along
with edge - same canyon - along cliff
to railroad and down to bottom of
next canyon. 6 traps along cliff
south of Grand Canyon.

gambeli 2¹/₂ 7 1¹/₂ ^{1-yr.} post. fur.

♀'s 7 1¹/₂ ^{1-yr.} post. fur.

renewed 2¹/₂ 3. (1 post. fur.)

♀'s 1 1¹/₂ 2 fur. 1 - post. fur.

Roeth 2 1

Perog. 2¹/₂ 6 1 - not seen

♀'s 2 - 1 fur.

17/12-17

14 traps in Museum Canyon, 5
trapped and animal loss, 5 of these
contained mice compared to 3
of untreated. 7/10: 3/10.

exam. ♂: 1 ♀: 2

Prey, 5; Keith 1♂, 1♀.

18/12

14 traps — in Mus. Canyon from
river to bridge, also up main canyon.

exam. ♂: 2

" ♀: 2 (1 - fast fur.)

Prey, 8 - not served.

19/12

16 traps around upper cottages.

exam. ♂: 2 (1 fur. - 1 fast fur.)

exam. ^{♀: 0} ♂: 2 (1 fur - fast fur.)

♀ 1 - " " "

Prey, 2 -

" 13

Lower Mus. Canyon between
bridges and onto road on north side.

Mice 1 ♂

Prey, 2 ♂: 1; Keith 1 ♂, 2 ♀

exam. ♂ - 1

14 - traps.

118-18

vicinity of Indian Springs
Canyon, 80 traps

gambeli ♂'s 17 { 2 ad., 1 juv., 14 imm.
 ♀'s 16 { 3 ad., 1 juv., 12 imm.

Perog. 1 adult ♂; Peith 1 adult ♀
californicus ♂'s 4 adult.

♀'s 11 (6 ad., 5 adol.)

Largest catch of calif. on record.
Both calif. and gambeli taken
all along the line.

119

Loc. same as 118. 60 traps
gambeli ♂'s 5 (3 adol.)

♀'s 4

calif. ♂'s 4 (1 juv. - 1 prob. juv.)

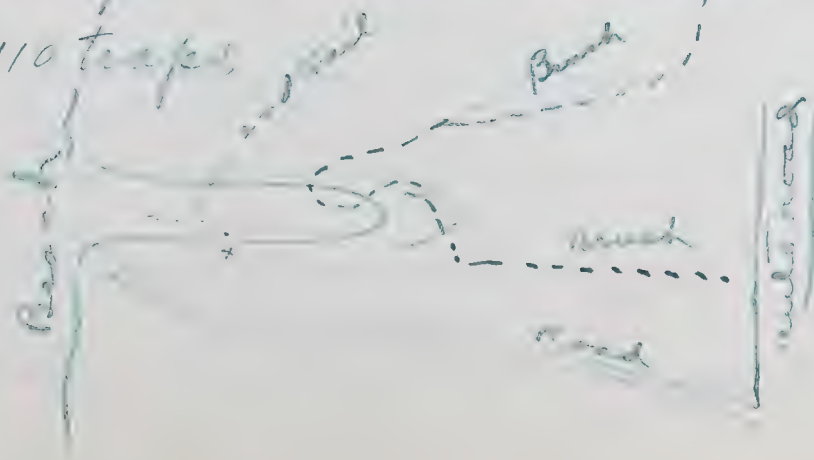
♀'s 1 - adol.

Peith 3 ♂'s, 1 ♀

Perog. ♂'s 1; ♀'s 2

122

Locality: - Near Indian Springs
Canyon 110 traps, set



1/22/11

gambeli ♂'s 5 { 4 adult or late adol, 1 strap tail "

" ♀'s 4 { 1 - juv. 1 - partly eaten.

Reith ♂'s - adult - no ♀'s

californicus ♂'s 3 (1 - juv.)

♀'s 3

1/29

Bamharts



/// traps

gambeli ♂'s 34 { 6 - juv. 11 - adol. 11 - adult + 6 juv. post-juv. + 4 dead

" ♀'s 28 { 2 - juv. 2 - adol. 6 - juv. - post juv. 18 adult.

cremiceus ♂'s { 5 - adult 1 - adol.

" ♀'s { 2 - adult 2 - adol.

calif 1 - juv. ♀

teroz. ♂'s 1 - dead adult ♀ 1

Reith ♂'s 3 - adult : ♀'s 1 - adol.

9/8-18

Murreson Canyon - from mirror-
 in to main canyon up above
 junction $\frac{1}{2}$ mi. and down to auto
 road. About 10 traps in artemisia to
 west of road below bridge. 20 traps
 on bear farm along edge of hill.
 60 traps in all.

crem. M's 12 { 5 adult
 6 adal.
 1 juv.

" ♀'s 8 { 5 adult
 3 adal.

Perog. M's 1 - ♀'s 3

calif. M's 3 { 1 adult
 2 juv. no ♀'s

Reith. M's 2

Mus 1

Though I did not make note
 of it in my original trapping record
 I feel quite sure that some of the
 crested were trapped in the lower
 part of the canyon. Apparently
 following the trapping out of the
 gambeli, crested moved down
 the canyon taking possession
 of the ecological niche formerly
 held by gambeli. No gambeli
 caught.

Feb-11

Canyon #3 - 70 traps.
 gambeli ♀'s, 4: } 2-adult - dead in trap.
 1 - juv. ♀

Scrog. 7 - adults.

Calif 7, 1, ^{adult}; even. ♂ 1; ♀'s 6 { 1-adult
 2-adult.
 3-juv.

Feb 13

Locality - Cecero Canyon. - along
 north edge from head of trail to
 cliffs and 1/2 mi. north along cliff.
 24 traps.

Dead in traps { 1 - juv. Scrog &
 1 - adult ♀ gambeli.
 1 - juv. " "

Note: - In a number of cases, did not
 make note of dead in traps. Merely record
 at result. Number, not usually - myself.

gambeli ♂s 4 { 3 - adult
 1 - adult.
 ♀'s 3 - { 2 - adult
 1 - juv.

Scrog. 1 ♀

Feb 14

62 traps - North and northeast
 edge of Cecero Canyon and toward
 to south.

gambeli ♂ 4: { adult =
 juv. 3

Scrog. ♂s 2 : Peck 2 ♂'s { 1 - adult
 1 - adult.

Corn. ♂s 2 ♀'s 3; Mice 1 ♂

9/15-18 50 traps : 6-on north bank of Cereus
canyon. Cal. from bridge up to top
on south side -- along south edge--
and along cliff to Barnhart's canyon
and to bottom of same.

gambeli ♂'s { 5 - adult
3 - adol.
1 - juv. ♀'s 3

erem. ♂'s { 3 - adult
1 - juv. ♀'s 2

Perog. ♀'s 2

North 2 - adult ♂'s ; 1 - adult ♀

West 1 - adult.

4/18-19 Locality as shown for 9/15-18.
Indian Springs canyon. Most of the traps
set in canyon just below the level of
the mesa, or along edge of mesa.

60 traps. Trapping especially for Californicus.
Prevailing plants - chamise, ceon-
othus, scrub oak - some Rainier.

gambeli ♂'s adult 3 adol. 4 juv. 1

" ♀'s 1 3

californicus ♂'s 5 2 1

" ♀'s 8 1

Perognathus — 1 adult ♀
Record catch of Californicus

4/18 - In two cases, traps contained two adult californicus (1♂ and 1♀). One adult calif. ♀ had tail missing. Stump (scar was old) less than 1 cm. in length.

4/19 - Same locality. Traps found empty - previous day were re-baited and left in same locations. About 25 traps out.

gambeli; - ♂'s 2 adol.

" ♀'s 1 adult preg. 1-juv.

californicus 1 - adult ♂.

